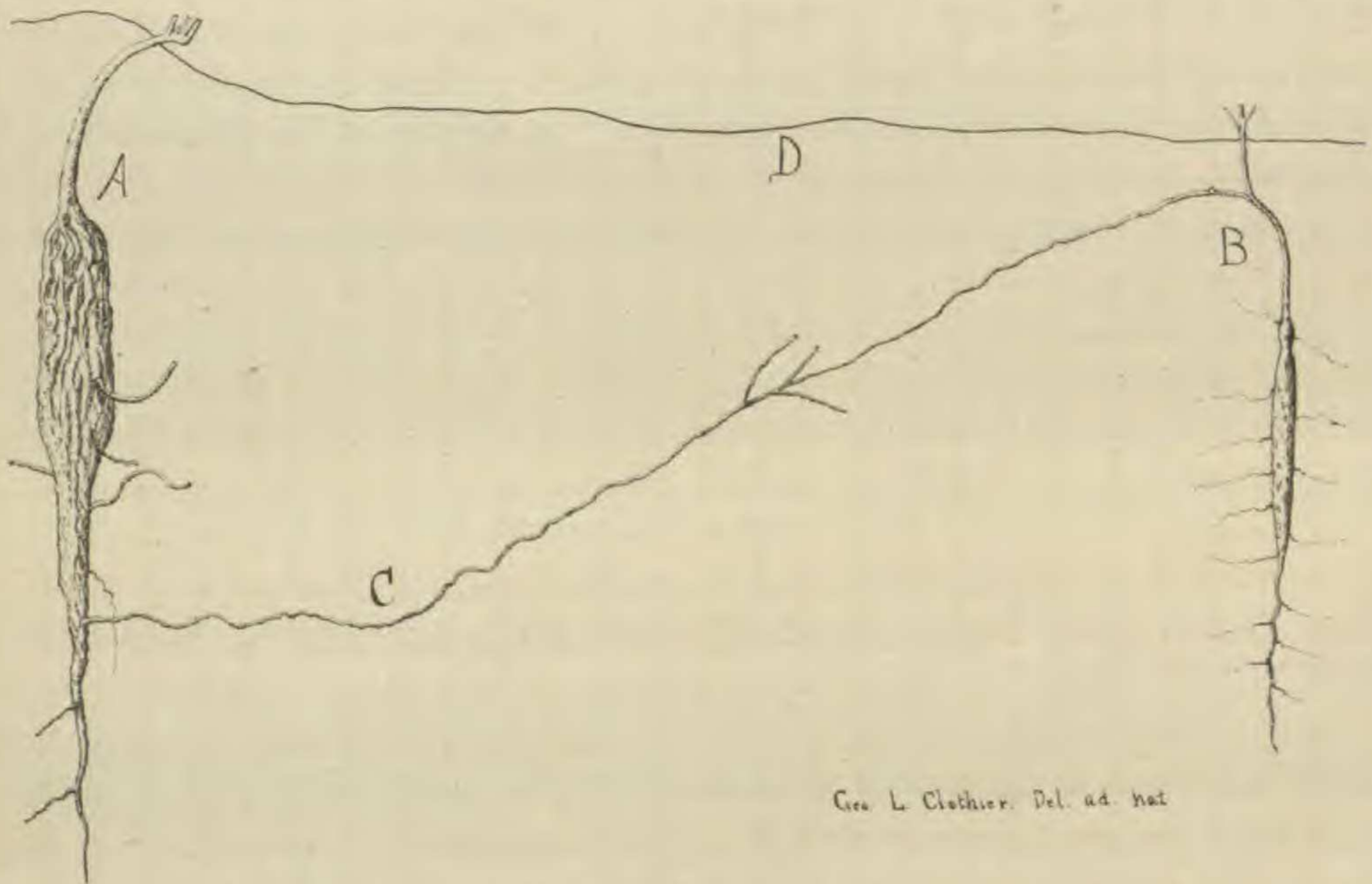


produced. A number of young plants may have their origin in series from a single propagating root. The buds are formed only where the root has attained to the proper distance from the surface of the ground for the thrifty growth of the young plants. Each young plant, while



Geo. L. Clothier. Del. ad. nat.

Root propagation of *Ipomœa leptophylla* Torr. *A*, parent plant; *B*, young plant; *C*, propagating root; *D*, ground line. Reduced to $\frac{1}{15}$ natural size.

still connected with its parent, sends down a fusiform fleshy root which penetrates the soil to a depth of three or four feet.

The accompanying figure shows the fleshy root of an old plant connected with a young plant by one of its propagating roots. This plant had six other horizontal roots that were presumably propagation roots also. It was noticed that the propagating root under consideration was thinnest at a point two or three feet away from the young plant, and that it branched back of this point, probably giving rise to propagating rootlets of other young plants. It took its origin from the mother plant about three feet below the surface of the ground.—
 GEORGE L. CLOTHIER, *State Agricultural College, Manhattan, Kansas.*

NOTES ON LILÆOPSIS.

MR. J. B. S. NORTON, of the Missouri Botanical Garden has just called our attention to the fact that *figs. 3* and *4* were transposed in

our revision of this genus.² *Fig. 3* is the fruit of *L. Schaffneriana*, and *fig. 4* that of *L. Carolinensis*, as the descriptions indicate.

Mr. Norton sends a specimen of our new species *L. Carolinensis* from New Orleans, collected by J. F. Joor. The only locality known to us was eastern North Carolina.

The eastern distribution of *L. lineata* is usually given as from Massachusetts to Mississippi, but we have never seen specimens west of Florida.

Collectors along the Gulf coast should endeavor to discover whether these two species are found there, and learn definitely their distribution. The flowers of *Lilæopsis* are always given as being white, but in *L. Carolinensis* Dr. Joor says they are pink.—JOHN M. COULTER and J. N. ROSE.

THE PHYSIOLOGICAL PROBLEMS OF TODAY.³

IF it be true that the fundamental problem of physics is the constitution of matter, it is equally true that the fundamental problem of physiology is the constitution of living matter. I think the time has come for physiology to return to its fundamental problem.

Living matter is a collective term for the quality common to all living organisms. Comparative physiology alone enables us to discriminate between the general properties of living matter and the functions of specific organs, such as the blood, the nerves, the sense organs, chlorophyll, etc. Nothing has retarded the progress of physiology and pathology more than the neglect of comparative physiology. Comparative physiology shows that secretion is a general function of all living organisms and occurs even where there is no circulation. Hence it was *a priori* false and a waste of time to attempt to explain secretion from the experiments on blood pressure. Oxidations occur regardless of circulation and it was *a priori* a waste of time to consider the blood as the seat of oxidation. Comparative physiology has shown that the reactions of animals to light are identical with the heliotropic phenomena in plants. Hence it is a mistake to ascribe such reactions as the flying of the moth into the flame to specific functions of the brain

² BOT. GAZ., 24: 48, 49. 1897.

³ Delivered at the Ithaca meeting of the American Society of Naturalists, December 29, 1897. Dr. Loeb's paper is one of seven upon "The biological problems of today," each speaker being limited to ten minutes.